Technical Procedures for Processing with Leucocrystal Violet

1 Scope

Leucocrystal Violet is used by FBI Laboratory Friction Ridge Discipline personnel to enhance visual prints or develop latent prints deposited in blood. The process can be used on all surfaces but is primarily used on non-porous items

2 Limitations

The background of porous items may become stained during the process and obscure information.

3 Equipment/Materials/Reagents

Distilled water

Leucocrystal Violet (dye content ≥90%)

Sodium Acetate

Hydrogen Peroxide (3% solution)

5-Sulfosalicylic Acid (purity ≥99%)

4 Procedures

4.1 Solution Preparation

4.1.1 Leucocrystal Violet Working Solution Preparation

Personnel will prepare the solutions as follows. Alterative amounts may be prepared, provided the same ratio of chemicals mixed is retained.

Combine:

- Hydrogen Peroxide (3% solution) - 1000 ml
- 5-Sulfosalicylic Acid - 20 g
- Sodium Acetate - 7.4 g
- Leucocrystal Violet - 2 g

Stir until Leucocrystal Violet dissolves (approximately 30 minutes).

4.2 Application

Personnel will apply Leucocrystal Violet working solution to the item. The area may be blotted with a tissue or paper towel as needed.

> Note: Leucocrystal Violet is prone to over-development. Use with finest mist possible to avoid over-development and running of bloody print.

For digital capture and photography, see FBI Friction Ridge Discipline Processing Manual Preamble.

4.3 Storage of Solution

Leucocrystal Violet working solution must be stored in a dark bottle.

4.4 Shelf Life

Leucocrystal Violet working solution has a 30-day shelf life provided the reagent checks are satisfactory.

5 Standards and Controls

See FBI Friction Ridge Discipline Processing Manual, Preamble.

6 Safety

See FBI Laboratory Safety Manual for appropriate information.

7 Sampling

Not applicable.

8 Calculations

Not applicable.

9 Measurement Uncertainty

Not applicable.

10 References

FBI Laboratory Safety Manual, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

FBI Friction Ridge Discipline Processing Manual, Preamble, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

Takayanagi, M., et al. "Colorimetry of Hydrogen Peroxide Using Leuco Crystal Violet (LCV)". *Japanese Journal of Clinical Chemistry*. 14:337.

Trozzi, T. A., Schwartz, R. L., and Hollars, M. L. *Processing Guide for Developing Latent Prints*, FBI Laboratory, Washington DC, 2001.

Rev. #	Issue Date	History
1	10/02/17	Specific section numbers referenced in Preamble removed throughout document. Section 1, latent print personnel added. Section 4 removed and remaining renumbered. Titles for Section 4 and Section 7 modified. Section 9, generalized. Updated for Biometrics Analysis Unit. References Updated. Abbreviations addressed.
2	07/15/21	Replace Latent Print Units with Friction Ridge Discipline. Minor wording changes. Section 1, add last sentence. Section 2, added limitation. Section 3, streamline equipment list. Section 4.1.1, added ratio allowance. Re-organization and re-numbering of sections. Section 5, added Preamble reference.

Approval

Redact - Signatures on File

Friction Ridge Discipline
Technical Leader — Date: 07/14/2021

Latent Print Operations
Unit Chief — Date: 07/14/2021

Latent Print Support Unit
Chief — Date: 07/14/2021

Scientific and Biometrics
Analysis Unit Chief — Date: 07/14/2021